Patent Claims

1. An intrinsically safe pick-up for reproduction or recording devices for different optical recording media having at least two laser diodes (LD1, LD2) and having a monitor diode (PD) which controls the different light power levels of the laser diodes (LD1, LD2), comprising:
a switching means (SW), which is formed with interlocked switches (S1, S2), in order to produce a reference value which is associated with one laser diode (LD1 or LD2) with the monitor diode (PD) and in order to form an intrinsically safe pick-up (EPU).

2. An intrinsically safe pick-up according to claim 1, wherein the intrinsically safe pick-up (EPU) contains a switching means (SW) which contains interlocked switches (S1, S2) to which light power adjusting resistors (R1, R2) are connected.

3. An intrinsically safe pick-up according to claim 1, wherein the interlocked switches (S1, S2) of the switching means (SW) connect the monitor diode (PD) via a light power adjusting resistor (R1, R2) to the reference of a laser regulator (LR1, LR2) in order to generate a reference value in a laser control loop for one of the laser diodes (LD1 or LD2), and switch off all the light power adjusting resistors (R1, R2) in order to form an intrinsically safe pick-up (EPU).

4. An intrinsically safe pick-up according to claim 3, wherein at least two laser control loops are provided in order to set the light power levels of the laser diodes (LD1, LD2) with a monitor diode (PD), and each comprisind a laser regulator (LR1, LR2) which is connected to the monitor diode (PD)

and to which a controllable current source (Q1, Q2) is connected in order to set the light power levels of the laser diodes (LD1, LD2), and with the laser regulators (LR1, LR2) being driven by a control signal (ST1, ST2) which identifies the type of optical recording medium in the reproduction or recording device.

5. An intrinsically safe pick-up according to claim 1, wherein a controllable current source (Q1, Q2) with a laser regulator (LR1, LR2) connected to the monitor diode (PD) is provided for each of the laser diodes (LD1, LD2).

6. An intrinsically safe pick-up according to claim 1, wherein the switching means (SW), which is formed by two interlocked switches (S1, S2), comprises a logic circuit in order to generate a reference value which is associated with a laser diode (LD1 or LD2) and in order to form an intrinsically safe pick-up (EPU), which logic circuit prevents simultaneous closure of the switches (S1, S2) and opens the switches (S1, S2) with simultaneous actuation.

7. An intrinsically safe pick-up according to claim 1, wherein the interlocked switches (S1, S2) are electronic switches.

8. An intrinsically safe pick-up according to claim 1, wherein the interlocked switches (S1, S2) are switches in whose control line a logic circuit is inserted.

9. An intrinsically safe pick-up according to claim 1, wherein the switching means (SW) comprises a logic circuit which is formed by two AND gates (U1, U2) each having an inverting input, and in

which each inverting input of an AND gate (U1 or U2, respectively) is connected to the input of the other AND gate (U2 or U1, respectively), to which a switching signal (tSW1, tSW2) is applied for one of the switches (S1 or S2) of the switching means (SW), whose control intput is connected to the output of the AND gate (U1 or U2) to whose input the switching signal (tSW1, tSW2) for the switch (S1 or S2) is applied.

10. An intrinsically safe pick-up according to claim 1, wherein the reference value which is associated with one laser diode (LD1 or LD2) together with the monitor diode (PD) is formed by light power adjusting means which are connected to the monitor diode (PD) via the switching means (SW).

11. An intrinsically safe pick-up according to claim 10, wherein the light power adjusting means which are connected to the monitor diode (PD) are light power adjusting resistors (R1, R2).

12. An intrinsically safe pick-up according to claim 1, wherein the switches (S1, S2) of the switching means (SW) are actuated via a logic circuit, which interlocks the switches (S1, S2) and forms an intrinsically safe pick-up (EPU), by means of a control signal (ST1, ST2) which identifies the type of optical recording medium in the reproduction or recording device.

13. An intrinsically safe pick-up according to claim 1, wherein the switches (S1, S2) of the switching means are controlled via a logic circuit, which interlocks the switches (S1, S2) and forms an intrinsically safe pick-up (EPU), by means of switching signals (tSW1, tSW2) from a modulator

assembly (BMOD) which is connected to the laser diodes (LD1 or LD2).

14. An intrinsically safe pick-up according to claim 13, wherein a modulator (MOD) is provided in the modulator assembly (BMOD) for each of the laser diodes (LD1 or LD2) and has a control assembly (contr) which switches on the modulator (MOD) when the laser diode (LD1, LD2) to which it is connected is actuated, and wherein the control assembly (contr) generates a switching signal (tSW) for controlling the switches (S1, S2) by means of the logic circuit.

15. An intrinsically safe pick-up according to claim 1, wherein the control inputs of the switches (S1, S2) of the switching means (SW) are connected to comparators (K1, K2) which are connected to the laser diodes (LD1 or LD2), via a logic circuit which interlocks the switches (S1, S2) and forms an intrinsically safe pick-up (EPU).

16. An intrinsically safe pick-up according to claim 1, wherein light path adjusting resistors (R1, R2), which are provided on the monitor diode (PD) in order to generate a reference value which is associated with a laser diode (LD1 or LD2), are switched off by the switching means (SW) in order to form an intrinsically safe pick-up (EPU) having at least two laser diodes (LD1, LD2) and a monitor diode (PD) which controls different light power levels of the laser diodes (LD1, LD2).

17. An intrinsically safe pick-up according to claim 1, wherein the switching means (SW) and a modulator assembly (BMOD) which is connected to the laser diodes (LD1, LD2) are arranged on a common substrate (MS).

18. An intrinsically safe pick-up according to claim 1, wherein a switching means (SW) which comprises interlocked switches (S1, S2) is provided on the pick-up, by means of which an intrinsically safe pick-up (EPU) is formed and a reference value, which is associated with a respective laser diode (LD1, LD2), is formed in order to control the light power of the laser diode (LD1, LD2).

19. A reproduction or recording device for different optical recording media having at least two laser diodes (LD1, LD2) and the monitor diode (PD) which controls different light power levels of the laser diodes (LD1, LD2), characterized in that, the reproduction or recording device comprises an intrinsically safe pick-up (EPU) which is connected to a DVD/CD circuit (CS).

20. Reproduction or recording device according to claim 19, wherein the intrinsically safe pick-up (EPU) has laser diodes (LD1, LD2), which are integrated in a twin laser (TWL), and a monitor diode (PD).